

**NEVADA DEPARTMENT OF WILDLIFE
NATIVE FISH AND AMPHIBIANS
FIELD TRIP REPORT**

DATE(S): 16-17 August 2005

LOCATION(S): Shoshone Ponds, White Pine County, NV

PURPOSE(S): To estimate the population sizes of Pahrump poolfish and relict dace

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INTRODUCTION

In 1972, the Ely District of the Bureau of Land Management constructed three small warm water ponds in eastern Nevada with the intent of providing habitat for endangered species. On 13 August 1976, 50 Pahrump poolfish (*Empetrichthys latos latos*) were transplanted into one of the ponds. The Relict dace (*Relictus solitarius*) was introduced to one of the four ponds in December 1977. Currently there are Pahrump poolfish in the three northern most ponds and there are Relict dace in the most southern pond of the refuge. Population estimates are conducted annually at the refuge.

METHODS

On 16 August, 4 Gee Minnow traps (1/4" mesh, 1" funnel openings) and 1 Gee Exotic trap (1/4" mesh, 1" funnel openings), without bait, were set around the perimeter of each of the three lower Shoshone Ponds in White Pine County. Seventeen Gee Minnow traps and 3 Exotic traps were set, without bait, around the perimeter of the stock pond. The traps were allowed to fish 4-5 hours before they were pulled. All of the fish in the exotic traps were measured before being marked. Each fish greater than 30 millimeters was marked with an oblique clip on the caudal fin before each fish was released.

On 18 August, 5 Gee Minnow traps were set, without bait, along the perimeter of each of the three lower ponds. Twenty-two Gee Minnow traps without bait were set in the stock pond. Traps were allowed to fish for 4 hours before they were pulled. Each fish caught was examined for marks, tallied, and released. Dissolved oxygen, percent saturation and temperature were measured using a YSI Model 55 Dissolved Oxygen Probe. The lower ponds were sampled at 09:40 hours and the stock pond was sampled at 12:45 hours. The results are shown in table 2.

A population estimate was calculated using Peterson's estimator: MC/R . Where M =number of individuals marked, C =number of individuals examined for marks and R =number of individuals recaptured. Approximate 95% confidence intervals were determined using a table appropriate to the Poisson Distribution, after the method described in Ricker (1975).

RESULTS

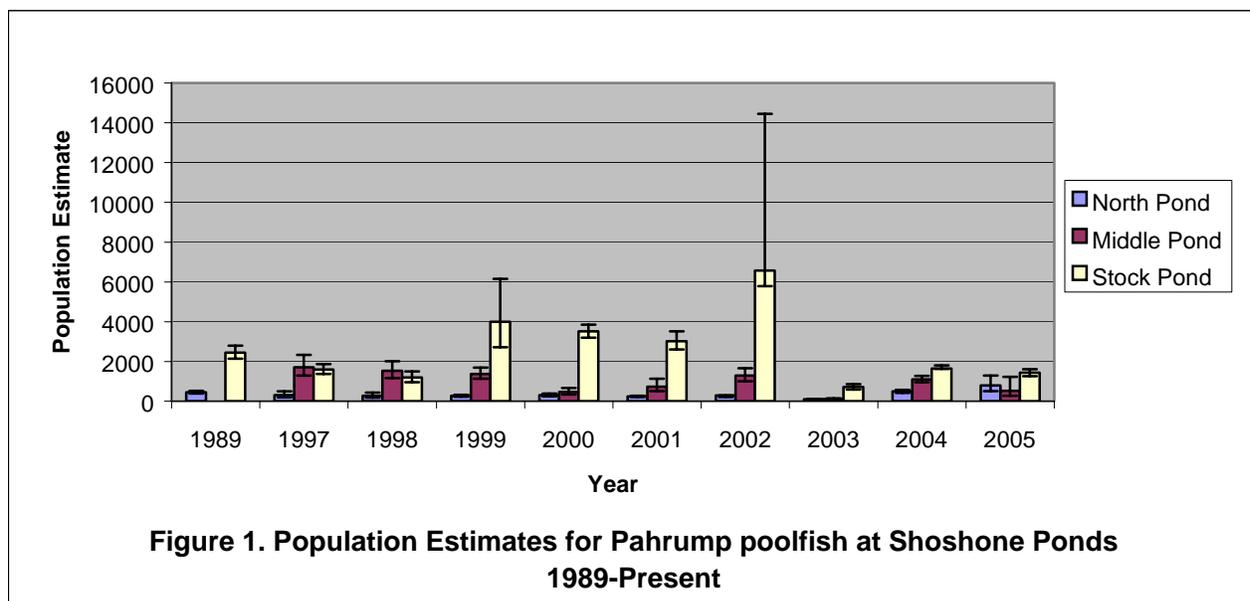
The majority of the Pahrump poolfish captured were caught in the stock pond (Table 1), but the highest catch per unit effort (CPUE) was in the middle pond. The population estimate for the Relict dace is very poor because of the low recapture rate.

Location	Species	M	C	R	CPUE M	CPUE C	Estimate
North Pond	<i>E. l. latos</i>	209	76	20	12.43	3.58	516< 794 <1302
Middle Pond	<i>E. l. latos</i>	279	15	8	19.24	0.75	265< 523 <1231
South Pond	<i>R. solitarus</i>	104	8	1	5.01	0.37	149< 832 <8320
Stock Pond	<i>E. l. latos</i>	686	549	261	8.61	5.37	1278< 1443 <1629

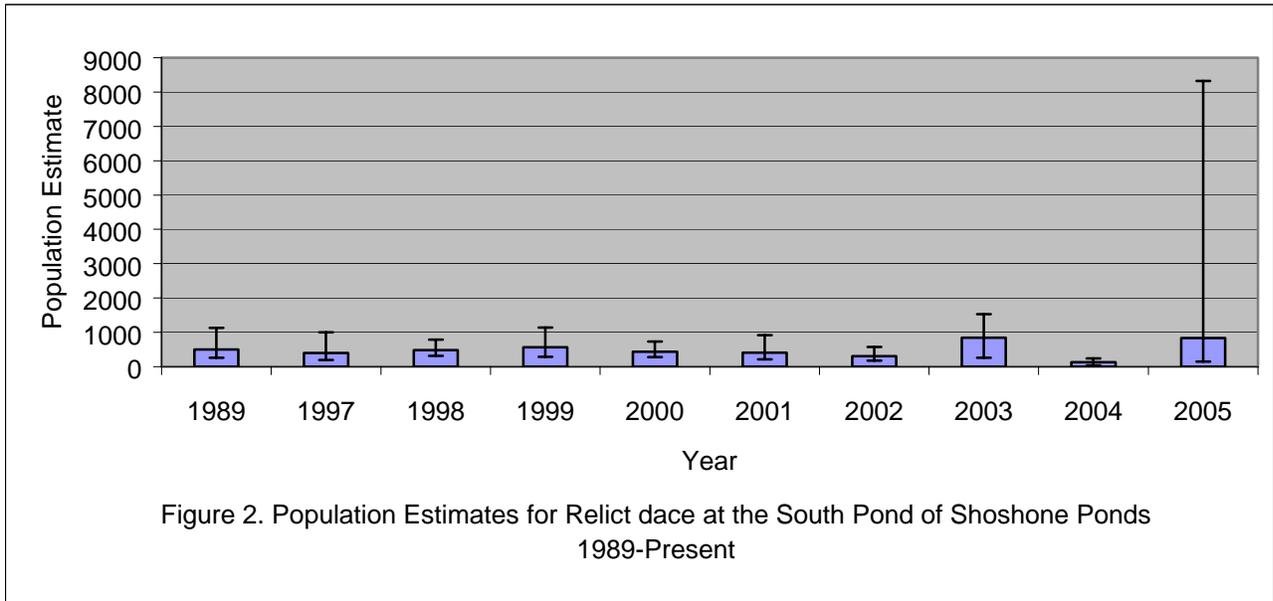
Water temperatures were highest in the south pond (Table 2). The highest dissolved oxygen levels were recorded in the stock pond.

Location	DO (mg/L)	% Saturation	Temperature (C)
South Pond	5.83	70.3	24.7
Middle Pond	4.62	52.6	20.4
North Pond	4.06	27.6	20.4
Stock Pond Inflow	6.9	72.6	17.4
Stock Pond SE Corner	7.33	78.4	18.1
Stock Pond Outflow	7.78	81.7	17.3

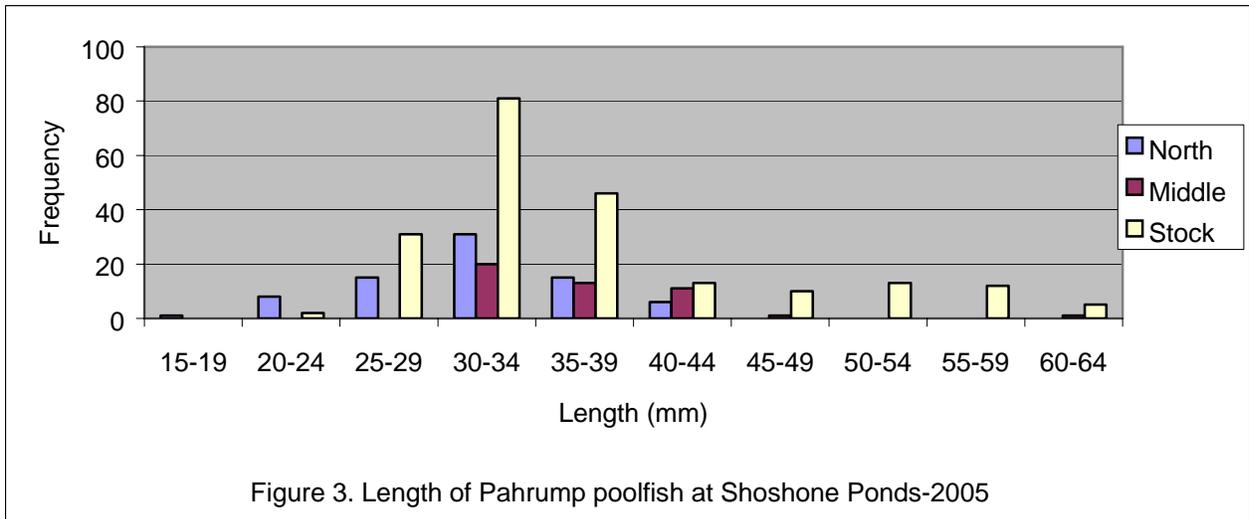
Population estimates for poolfish in the stock pond and the middle pond have dropped from last year's estimate (Figure 1). However, the estimate for the north pond has increased from last year's estimate.



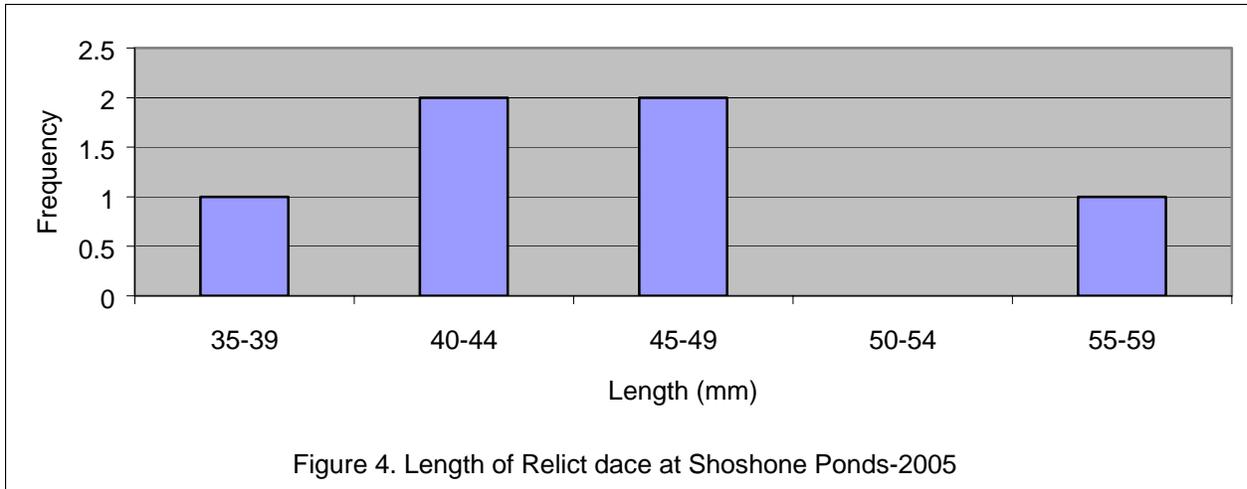
The population estimate for Relict dace is higher than last year's estimate (Figure 2).



Most of the poolfish caught in all three ponds had a total length of 30-34mm (Figure 3).



It is difficult to determine much about the length distribution of Relict dace since the sample size was extremely small (Figure 4).



DISCUSSION

The poolfish population at Shoshone Ponds is stable. The size distribution of fish also indicates that the populations should remain healthy. The relict dace population is usually difficult to effectively sample and this year it was exceptionally difficult. More time spent trapping would have yielded a more precise estimate, but we did not have the time. For all of the populations, the habitat was relatively unchanged compared to past site visits and there is no cause for alarm.

There has been an ongoing discussion with Paul Podborny, from the Ely BLM office, about enlarging the enclosure to include more of the marsh west of the enclosure and flowing well north of the enclosure. Paul will look into the preferences of the grazing permittee. This would allow us to increase habitat and improve water quality for the poolfish at this site and maintain greater numbers of fish.

Limited grazing is suggested to keep the vegetation under control in the enclosure for the Northern leopard frogs (*Rana pipiens*). It is recommended that the ponds be enlarged. The Russian olive should be removed too. Once the fence is complete, a ditch should be dug east of the enclosure to re-route the runoff, which can be laden with cattle manure. New outflow structures should be installed on the west banks of the ponds to facilitate circulation and recycling of water. They would also stabilize the banks around the ponds by keeping the banks relatively dry, which should prevent escape.

A recently dead Northern pike was found in the dried out pond north of the flowing well. It is believed it was transported from Comins Lake.

LITERATURE CITED

Ricker WE. 1975. *Computation and Interpretation of Biological Statistics of Fish Populations*. Bulletin of the Fisheries Research Board of Canada. 191: 382 pp.